

**A book for the
home craftsman,
farmer, hobbyist
and others who
use edged tools.**



GUIDE TO SHARPENING

PUBLISHED BY
AUSTRALIAN ABRASIVES PTY. LTD.



Foreword . . .

There are many tool users who have never known the pleasure of working with really sharp tools, and thus toil with blunt tools for only mediocre results. Others feel that a truly keen edge is beyond their ability to produce or believe a great deal of time and effort is required to obtain such an edge.

Contrary to these beliefs, anyone can put a really keen edge on the tools he uses — with no more time or effort than is needed to get a rough, imperfect edge. The methods in this book will let any man obtain an edge as keen as the steel of the tool will hold — easily and quickly.

We believe, too, that the methods detailed herein will also help prolong the life of your tools — and to maintain them in a condition that makes them a joy to use.

Finally, this book is not published with the idea of selling more sharpening stones. We hope it may help correct many erroneous impressions concerning sharpening stones, their uses and their limitations — and in doing that increase the life and effectiveness of the stones you already possess or those you are contemplating.

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What is meant by SHARPENING

A perfect cutting edge, under a microscope, resembles a picture of a mountain range with its hills and valleys. These mountains or teeth are actually what makes an edge cut; without them a tool edge loses its cutting efficiency and is dull.

Now, let's examine a typical edge such as is found on a plane or chisel. By magnifying it we can see what it looks like when dull, and what happens to it during the sharpening process.

The edge, as shown in Figure 1, is magnified 20 times. The "hills and valleys" are very prominent. While it could still be used, this edge would tear rather than cut. The cutting edge has broken down or worn off, and it is also nicked — by accident or by impact against a hard knot or other substance.

An edge like this would never be tolerated by the professional craftsman, but it is safe to say it may be found in many home workshops.

FIG. 1. Here is a dull edge that will tear — not cut. It is gapped and needs attention.

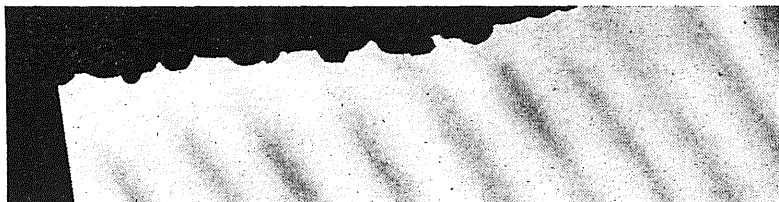




FIG. 2. This is the same edge as in Fig. 1 after a few minutes' sharpening on the coarse side of a combination stone.

In Figure 2, the same edge is shown after the first stage of sharpening on a coarse stone. The "hills and valleys" are all greatly reduced, the chipped out spots have almost disappeared and we have an edge that may be called relatively sharp — but only in the high spots. Although it looks rough in the magnified photo — and is rough as an edge — it would cut. Some users would consider it good enough.



FIG. 3. After the final stoning on the fine side of the sharpening stone. In spite of its excellence this edge is easy to produce and maintain.

But in Figure 3 we see the same edge after the final stoning. Here is an edge you could probably shave with — a truly sharp edge, that will do excellent work with gratifying ease. The "hills and valleys" are shallow and minute, as in a razor edge.

This edge will last.

Factors in Sharpening

For success with any job it is wisest to invest in good quality tools. They will more than repay the extra cost in the service they give. But two other elements play an important role — the stone or stones with which tools are sharpened and the lubricant used during the sharpening process. An understanding of these two factors will greatly aid in their effective application.

STONES

There are two classes of stones, both important in sharpening. These are electric furnace — or manufactured from artificial abrasives — stones and natural stones. The grit of manufactured stones is actually harder than anything in nature except diamond. These stones are valuable for their uniformity of quality and fast-cutting action, enabling metal to be removed quickly and a lasting edge imparted. Ninety per cent. of sharpening today is done with one or other of the manufactured stones.



SILICON CARBIDE: This abrasive, made from silica and carbon, is used in the widest range of stones to be found at hardware stores. It is made in an electric furnace, crushed, graded to various degrees of fineness and scientifically bonded to shape. Uniform in texture and hardness, it is fast-cutting with a light pressure, and is recommended for sharpening practically all tools.



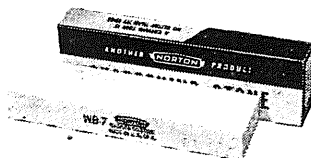
ALUMINIUM OXIDE: Another electric furnace abrasive, the basis of which is bauxite. After crushing and grading, the crystals are vitrified together in shapes for all sharpening needs. Oil-filled in the factory, sharpening stones of this abrasive hold their shape remarkably well and are favourite stones with craftsmen who prefer precision edges.

NATURAL STONES are quarried and supplied just as nature made them. Their principal characteristic is extreme density and hardness, invaluable for extremely fine edges. Today, the use of natural stones is confined to a few trades and specialized industries where the finest edge is required.

HARD ARKANSAS*: Found only in the Ozark Mountains, U.S.A., it is a rare stone and its cost is comparatively high. Extremely hard, it is supreme for finish sharpening of the instruments used by surgeons, dentists, engravers, wood and ivory carvers.



SOFT ARKANSAS*: Not quite as hard as Hard Arkansas, more porous and so quicker cutting. Often used by tradesmen for the finish stoning of woodworking tools.



WASHITA*: A natural stone, softer and quicker cutting than Soft Arkansas. Has long been popular for quickly producing an edge of good medium fineness.

**Trade marks, NORTON CO., U.S.A.*

OIL

All sharpening stones are porous, the degree of porosity varying with the density of formation of natural stones and the structure of artificial stones. Least porous are Hard Arkansas; while coarse Silicon Carbide stones are relatively open.

This porosity lets the crystals of natural stones and the grains of artificial stones stand apart so that a multitude of cutting points is presented. Grains fracture irregularly during the sharpening of a tool and a new, clean cutting surface is continually presented so long as the porosity of the stone is not impaired.

Because of this, there are good reasons for using oil on sharpening stones. Firstly, oil suspends and floats away the fine steel particles from the blade, preventing these particles from clogging the pores or "glazing" the stone. Secondly, it gives the stone a faster, cleaner cutting action and, finally, lets you do a better sharpening job.

A very light, free-flowing, non-gumming oil is recommended for use on sharpening stones. Additional advice on the care of sharpening stones is given on the following page.

How to Care for Sharpening Stones

There are three reasons in taking good care of a sharpening stone: firstly to retain the life and sharpness of its grit; secondly, to keep its surface flat and even; thirdly, to prevent glazing.

To retain the original freshness of the stone, it should be kept clean and moist. To let a sharpening stone remain dry a long time, or expose it to the air, tends to harden it. A new natural stone should be soaked in oil for several days before using. If a sharpening stone is kept in a dry place it should be placed in a box with closed cover, and a few drops of fresh, clean oil left on it.

To keep the surface of a sharpening stone flat and even simply requires care in using. Tools should be sharpened on the edge of the stone as well as in the middle to prevent wearing down unevenly, and the stone should be turned end for end occasionally. To restore an even, flat surface, grind the stone on the side of a grinding wheel or rub it down with an abrasive brick.

The proper use of oil or water will prevent a stone from glazing. The purpose of using either oil or water on a sharpening stone is to float the particles of steel that are cut away from the tool, thus preventing them from filling in between the crystals and causing the stone to glaze.

All coarse-grained natural stones should be used with water. Use plenty of it.

On medium and fine-grained natural stones and on all artificial stones, oil should be used as water is not thick enough to keep the steel out of the pores.



To further prevent glazing, the dirty oil should ALWAYS BE WIPED OFF THE STONE THOROUGHLY as soon as possible after using it. This is very important, for if left on the stone, the oil dries in, carrying the steel dust with it. Cotton waste is one of the best things with which to clean a stone.

If the stone does become glazed or gummed up, a good cleaning with petrol or ammonia will usually restore its cutting qualities, but if it does not, then scour the stone with abrasive paper or cloth, preferably fastened to a perfectly smooth board.

NEVER USE TURPENTINE ON A SHARPENING STONE FOR ANY PURPOSE

Selecting the right Sharpening Stones

It is not merely the friction between the stone and the steel that brings the latter down to an edge. Sharpening means **CUTTING**.

Every sharpening stone is a mass of minute crystals — sharp little cutting points, each harder than steel. The coarseness or fineness of these crystals, their hardness and their brittleness or toughness are the things which make one stone better than another for a specific purpose. You would not think of sharpening a razor on a scythestone. The scythestone and the razor hone mark two extremes. Between them lie the various stones used in shops, homes and on the farm.

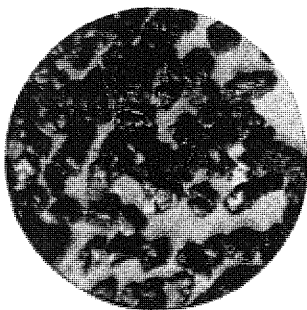
The first thing to consider is the purpose for which the stone is to be used — whether a fast-cutting stone will be more useful than a slower-cutting stone that gives a finer edge.

Cutting edges are classed in three groups — coarse, medium and fine. The ideal edge for a carving knife is a "coarse" edge. To take the time to set a finer edge would be a needless waste of time.

COARSE-EDGED TOOLS: Practically all of the tools in the coarse-edged group are knives. One of the reasons why these do not require a fine edge is the fact that knives are always used with a diagonal, or saw-like motion. This adds to the cutting efficiency, and at the same time the slight coarseness of edge, in its turn, adds to the saw-like effect, again making the cutting easier. These tools include carpet knives, carving knives, bread knives, paring knives and kitchen, household and farm knives of all kinds, including spades, shovels, hoes, scythes and sickles, but **NOT** including **TOOLS**.

MEDIUM-EDGED TOOLS: Medium-edged tools require more smoothness than a coarse edge affords, yet do not need extreme fineness. Such are the tools used by most mechanics — more particularly the broad bevel-edged tools like chisels, planes and draw knives. The logical inference would be that to secure a medium edge one should use a stone of medium grit. This is not entirely correct. The more satisfactory way is to use a **COARSE** stone for rapidly cutting the edge down, and then to finish on a **FINE** stone to whatever degree of fineness is desired. For this reason, a **COMBINATION STONE**, which unites a coarse stone and a fine stone, is usually more useful than a medium stone.

FINE-EDGED TOOLS: The tools and instruments in this group are used for highly specialised purposes, notably by the surgeon and the dentist and also by the scientist in preparing specimens for the microscope. Such edges, when quite dull, are usually brought down to comparative sharpness on a fine-grit stone, such as an Australian Abrasives Aluminium Oxide, but the finishing touches are given on an Arkansas Stone.



Magnified view of Silicon Carbide Crystals used in Sharpening Stones.

If your planes or
chisels are dull..



... sharpen them on an
A.A. No.108 Combination BENCH STONE



The extra ease and accuracy of your work more than repays you for the few minutes spent in making planes and chisels really sharp . . . and the easiest way of sharpening — and keeping sharp — these and similar woodworking tools is with an A.A. No. 108 Silicon Carbide Combination Bench Stone.

This popular stone has two grits — coarse and fine. Just a few strokes on the coarse side remove nicks — and on the fine side bring up a really razor-sharp and lasting edge. 8" long, 2" wide, 1" thick. At your hardware store.



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When to sharpen AGAINST or AWAY from the Edge

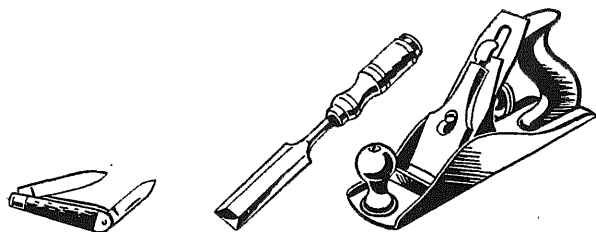
Whether to sharpen against or away from the edge may be a matter of choice. Most competent authorities agree that wherever practicable the sharpening should be done against the edge, or, when a backward and forward movement is used, with the main pressure when the edge is leading. Sharpening against the edge prevents the formation of a burr or wire edge which is liable to form when sharpening is done away from the edge.

However, it is not always practicable to sharpen against the edge and the rule is: when a tool or knife is put on the stone the sharpening is done AGAINST the edge or backward and forward alternately against and away from the edge, as with chisels and plane irons.

When, on the other hand, the stone is applied to the tool, as in the case of a scythe, the sharpening should be done AWAY FROM the edge. This is a safety measure, as, if the stone were used against the edge, a slight slip might result in a nasty cut.

It is possible, as some craftsmen assert, that sharpening all tools away from the edge gives a finer finish than is obtained by the other method; and that this finer finish compensates them for the extra time it takes in sharpening and in the removal of the wire edge.

A further point is the amount of pressure used when sharpening. Heavy pressure is likely to result in a coarser edge than when a light touch is applied and it is advisable to make the final touches as light as possible should a fine edge be desired.



What is the RIGHT Edge?

An edge that is right for one purpose can be wrong for another. One difference is in the angle of bevel, another difference is in the relative fineness of the edge. Both of these points are graphically presented in the drawings, representing typical tools from the razor to the axe.

In every tool there are two angles of bevel to be considered. For the purpose of illustration let us call these (1) "edge bevel" and (2) "blade bevel", meaning that part back of the edge. It is "edge bevel" that concerns us most, since in most tools and knives the "blade bevel" is fixed, and is seldom touched in sharpening. An exception, however, is in the plane or chisel blade, the "blade bevel" of which must occasionally be applied to the stone.



THE RAZOR is illustrated only for purposes of comparison with other tools, since the honing of a razor is a distinctly professional job. The "blade bevel", formed by hollow grinding, makes the blade very thin, the sides almost parallel. Note the very acute angle of the edge bevel. Obviously an edge like this, while ideal for its purpose, would never survive any other use. Note, too, the fineness of the edge compared with the kitchen knife.



THE POCKET KNIFE is truly a general purpose cutting tool. Its edge must be sturdy, and thus the edge bevel should not be too acute. An angle of about 25 degrees will serve most purposes. The pocket knife is one tool in which the edge bevel only is touched in sharpening; the blade bevel, or flat of the blade, being left as the manufacturer designed it.



THE CARVING KNIFE with a flat or hollow ground blade is similar in bevel of edge to the pocket knife, but for its purpose an edge not quite so fine is desirable, since in effect the carving knife actually saws through the meat.

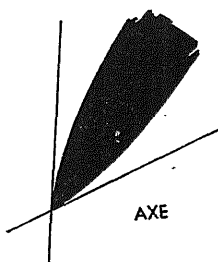
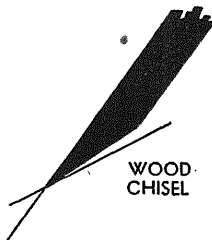
THE KITCHEN KNIFE is another all-purpose cutting tool, usually put to rather rough usage. In consequence, a comparatively obtuse edge bevel will stand up best, and a definitely coarse edge finish, easily and quickly renewed, is most serviceable.

THE WOOD CHISEL is representative of most woodworking tools in edge bevel and edge finish. The usual blade bevel of the chisel is at an angle of about 25 degrees, and the edge bevel only slightly more. A fine edge quality is most desirable on all woodworking tools.

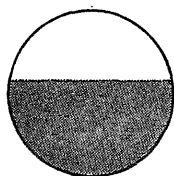
THE AXE is nothing more than a heavy wedge. To give it an acute edge bevel would merely cause it to stick in the wood at every stroke. Thus it is decidedly obtuse in both edge and blade bevel, so that in use it splits off the chips and frees itself easily for the next stroke.

The quality of the edge, however, is as fine as the user cares to make it. Some axemen have been known to keep their axes so sharp that they could actually shave with them. In any case, the sharp axe is safest to use, as a dull blade can glance off the wood and cause injury. This applies, in fact, to practically all edged tools.

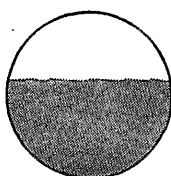
THE ICE SKATE is mentioned for comparison because its purpose requires, in the racing blade at least, the most obtuse of edge angles — a clean, square 90 degrees. The ideal edge is as keen as a piece of broken glass, and as fine in finish as a fine stone can make it, so it will not saw into the ice, but will glide over it, while at the same time preventing all side slippage. This edge is an excellent example of suitability to the work it has to do.



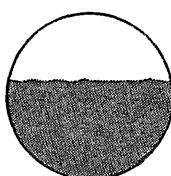
RELATIVE FINENESS OF EDGE FINISH



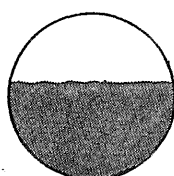
RAZOR



POCKET KNIFE
WOOD CHISEL
AXE - ICE SKATE

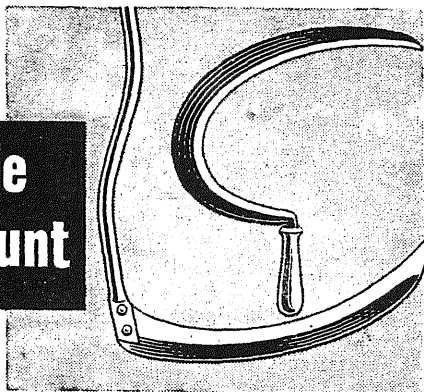


CARVING KNIFE

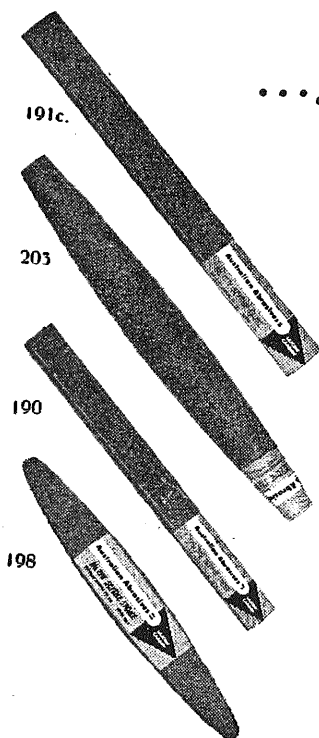


KITCHEN KNIFE

**If your scythe
or sickle is blunt**



...give it an edge with an
A.A. SCYTHE STONE



You can turn a dull, hard-to-use scythe or sickle into one that's really sharp and free-cutting in a few minutes with an A.A. Scythe Stone.

A.A. Scythe Stones are available in 4 sizes for every sharpening need, and with any of the 3 shapes — round, oval or flat — it's easy to get the correct edge bevel. Made from Silicon Carbide, A.A. Scythe Stones are quick-cutting and do not rust. Also handy for renewing edges on spades, shovels, hoes, etc. At your hardware store.

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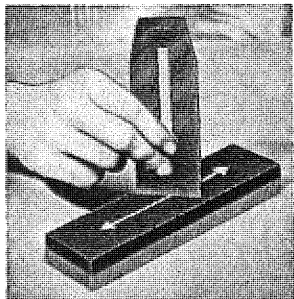
The plane and other chisel-type tools are as representative an example of all sharpening procedure as one can find.

In the pages immediately following, the sharpening of a plane blade will be covered in complete detail, so that the principles established may be applied as a general basis to the sharpening of all edged tools and utensils. Where obvious deviations in method or procedure must be followed, they will be described in the case of each tool, in succeeding pages.

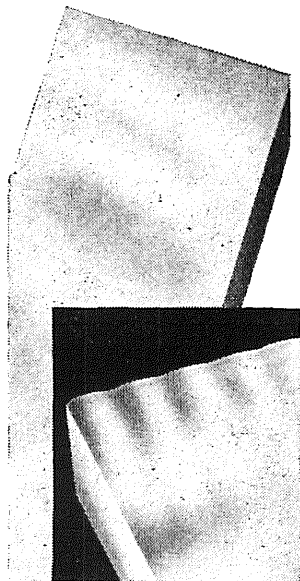
NOTE: Occasionally a plane or chisel-type tool, through misuse or accident (e.g., when deeply gapped), may require regrinding to its original shape. If this necessity arises, a good quality grinding wheel should be used, and every care taken to ensure that the correct bevel is obtained and that the tool temper is retained.

In sharpening equipment, you will need both a coarse and a fine stone, or one stone — such as a SILICON CARBIDE Combination or an ALUMINIUM OXIDE Combination Bench Stone — which has a coarse and a fine face. This will serve for most tool sharpening needs. For the finishing touches on very fine edges, a small HARD or SOFT ARKANSAS stone is desirable. As mentioned before, a can of good quality oil should always be on hand.

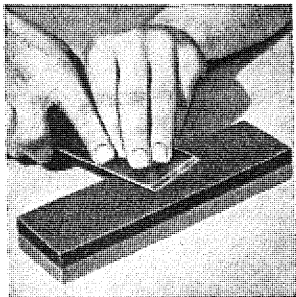
SHARPENING A PLANE IRON



THE EDGE MUST BE SQUARE so that the blade will not tend to work out of true in the plane. If the edge needs truing, take it off as needed, and holding the blade vertically on the face of the stone, pass it back and forth without changing its vertical position, while bearing down harder on the side that needs to be taken down. The corners of a plane blade can be rounded very slightly, using either the side or the end of the sharpening stone. This prevents the corners "digging-in" or leaving marks during planing.

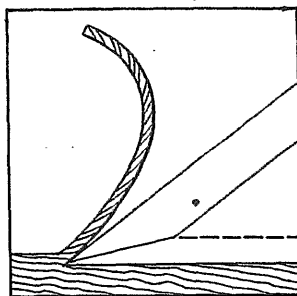


THE FACE OF THE BLADE MUST BE ABSOLUTELY FLAT to have a true cutting edge. Tool marks or rough spots of any kind on the top face of the plane blade will make a true edge impossible to obtain, as every depression in the face will cause a corresponding dip in the edge where the bevel meets the face. This is a point which is not always recognised in sharpening a plane iron.



To get a true flat finish, simply hold the plane blade face down against the fine side of your stone and, without rocking it, give it a long oval movement flat on the stone, with equal pressure all over. Use plenty of oil.

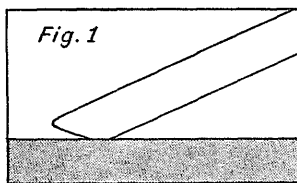
GETTING THE RIGHT BEVEL: Having made certain that the face of the plane iron is flat and free from tool marks, next establish the angle of blade bevel. This must be at such an angle that the heel, or top of the bevel, clears the work, so that the edge is the only part that touches the work. This angle varies with different planes. However, the angle should not be greater than necessary to clear the work, as the removal of too much metal will leave the edge with insufficient support.



WHEN TO WHET THE BLADE BEVEL.

This need be done only occasionally, as an edge which is started right can be maintained through many whettings.

The picture at the right, Fig. 1, shows a plane iron (enlarged) that needs attention all around. The edge is rounded. The edge bevel has become much too wide through many whettings, and the blade bevel is too narrow.



First thing to do is to take down the blade bevel to a point shown in Fig. 2 — all the way to the face of the blade. The coarse side of your stone should be used until the bevel is down almost to a point where it meets the face of the blade. Finish the blade bevel with a few strokes on the fine side of the stone.

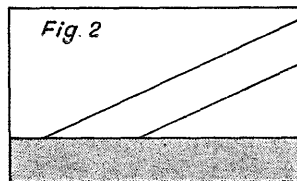
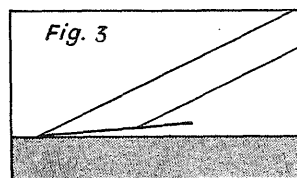


Fig. 3 shows how the stoning of the edge bevel puts the final finish on the sharpening operation.

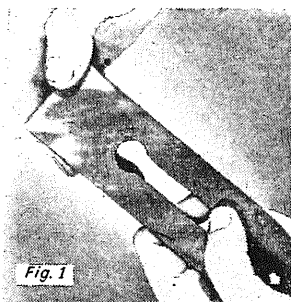


STONING THE BEVEL WITHOUT ROUNDING IT IS NOT DIFFICULT:

As in the photo, one hand only controls the angle at which the blade is held, the other merely supplying uniform downward pressure on the blade. Hold the wrists rigid, and move the blade across the stone in a continuous "figure 8" pattern in what might be called a "swinging" motion, the upper body taking part as well as the arms. If the wrists are kept rigid, the angle of the blade on the stone cannot change appreciably.

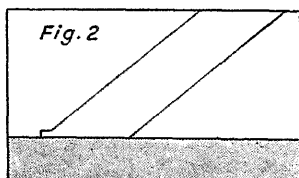
Some experts use a long oval movement instead of the "figure 8". In any case the motion is continuous, and not a "stop and start", back and forth movement, which is tiring as well as more likely to change the angle of bevel.



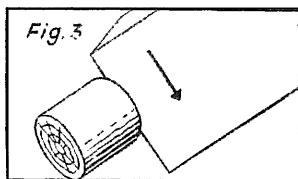


"WIRE EDGE" AND HOW TO REMOVE IT:

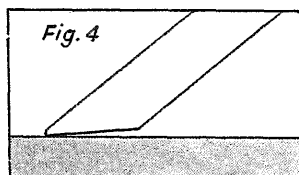
When you get a wire edge in the course of sharpening, you are approaching the end of the sharpening process. Wire edge is the very edge of the blade which has become stoned down so far that it bends away from the stone instead of remaining rigid and being stoned off. Figs. 1 and 2.



The wire edge may be so fine that you cannot see it without a glass, but you can feel it. The easiest way to remove this wire edge is to run the blade across a piece of hardwood once or twice, which will break it off Fig. 3.



It is important that the wire edge be carefully broken off. If it is merely stoned down, the root of the wire edge may be left on the blade — a very poor foundation for a lasting edge.



When the wire edge is completely removed, you will have a result as shown in Fig. 4. The tool is now ready for the final stoning.

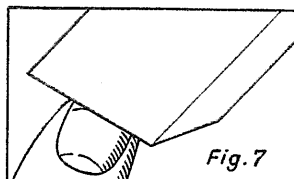
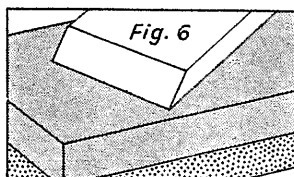
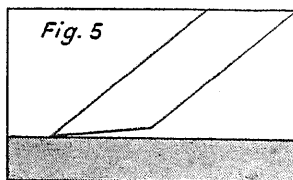
STONING THE EDGE BEVEL: Using the fine side of the stone, lay the bevel flat, then raise the heel of it very slightly and, holding the blade rigidly, stroke it in the "figure 8" movement previously described.

Do not use great pressure. As very little metal is to be removed, you will quickly get close to a fine edge.

Occasionally reverse the blade and lightly stone the face, holding it absolutely flat.

When the edge looks good, rest it lightly on your thumbnail as in Fig. 7. If it slides down the nail, continue the stoning.

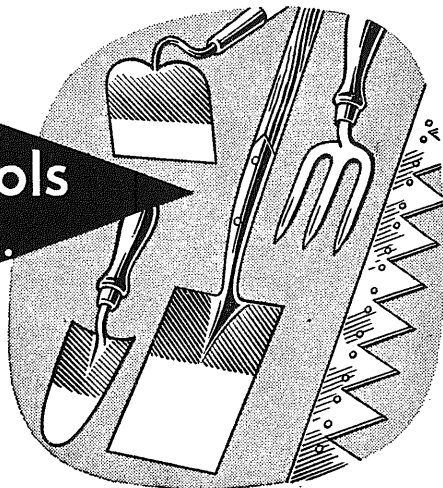
For most tools — and most tool users — the fine side of a **SILICON CARBIDE** or **ALUMINIUM OXIDE** stone will give an edge of satisfactory fineness. If you wish to go beyond this to an even finer edge then finish off on a **HARD ARKANSAS** stone.



THIS IS THE BASIS OF MOST SHARPENING and can be applied with obvious modifications to most tools. Stones may look alike, but a poor one will break down rapidly, lose its cutting quality, damage rather than sharpen a tool by its lack of uniformity, and in short prove anything but an economy.

A good stone lasts a lifetime. Long after its price is forgotten its value continues to be reflected in the excellence of your tools.

If your
garden tools
are blunt...

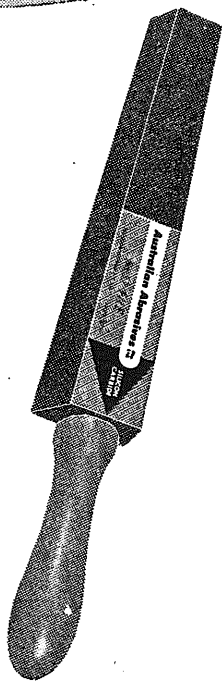


...sharpen them with an
A.A. "57" Abrasive FILE



It's easy to sharpen garden and farm tools . . . and easy to keep them sharp! Just a few strokes with an A.A. "57" Abrasive File . . . and your spades, shovels, hoes, etc., have really keen, long-lasting edges.

The A.A. "57" File has a solid 4-sided shaft tapered just right for putting the best edges on your garden tools — and for sharpening mower section knives without removing them from the machine! Made from Silicon Carbide abrasive, it's all file through and through — not just a shallow cutting surface. It outlasts and outcuts steel files, never rusts. At your hardware store.



"A Cutting Tool is Only as Good as its Edge"

A.A.85

AUSTRALIAN

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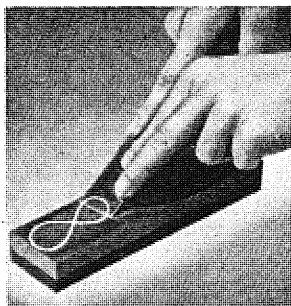
ABRASIVES PTY. LTD.

MANUFACTURERS OF

GRINDING WHEELS . . . SHARPENING STONES . . . ABRASIVE PRODUCTS

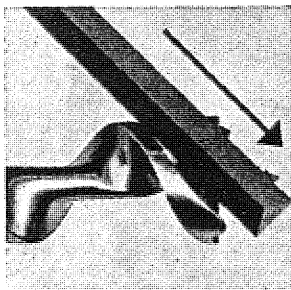
CHISEL

Woodworking chisels are sharpened the same as plane blades. This method is covered in detail on pages 14-17. Since most woodworkers desire a fine long-lasting cutting edge, an Aluminium Oxide Combination Bench Stone would give the best results. Use the coarse side just to develop quickly the desired edge bevel, then finish with the fine side.



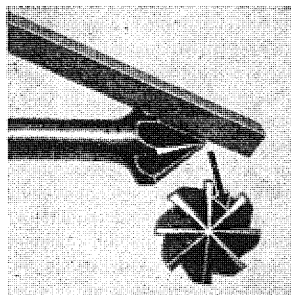
AUGER BIT

Use an Aluminium Oxide Triangular File, shaped to reach the edges of the bits. Stone the upper side of the cutting edges, being careful to retain the original bevel angle as closely as possible. Stone the lower side of the bevel only enough to remove any burr. Then stone the spurs which score the wood in advance of the cutting edges, working on the inside of the bit only.



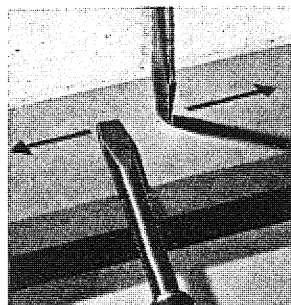
COUNTERSINK

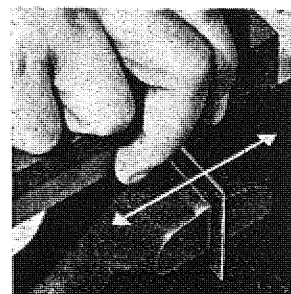
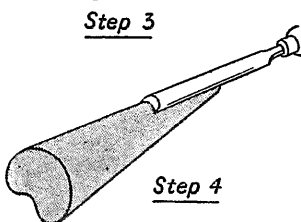
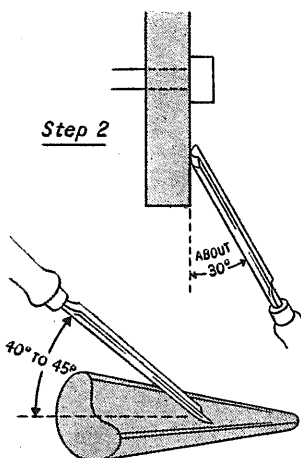
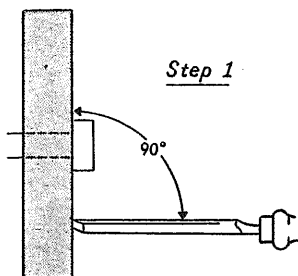
A worn or nicked countersink can be restored to usefulness by stoning the face of the cutting edges. Use a fine Aluminium Oxide File of the useful triangular shape.



SCREWDRIVER

Rounded edges on a screwdriver cause slipping and burred-up screw slots. These edges can be quickly restored by shaping on a Combination Stone. Keep the two faces of the blade parallel or nearly so, and carefully shape the bottom of the blade square.





GOUGE

This is one of the curved-edge tools that requires a stone formed to fit the curve of its edge. There is a special Aluminium Oxide Gouge Slip Stone for this purpose.

STEP 1: True old cutting edge on side of revolving grinding wheel of medium grit, to restore right angle. Hold steady. As heat develops, dip gouge in water to retain metal temper.

STEP 2: Restore original bevel angle as established by gouge manufacturer. Rotate gouge at steady rate from point to point. As heat develops dip gouge in water.

STEP 3: Set new cutting angle with Gouge Slip. Apply convex edge of gouge to concave face of slip so that rear of bevel is clear of stone. Sharpen by pushing gouge forward and rotate at same time from point to point.

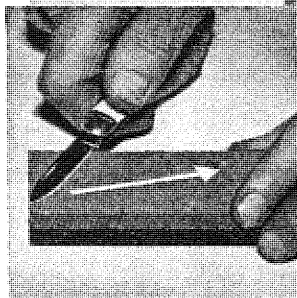
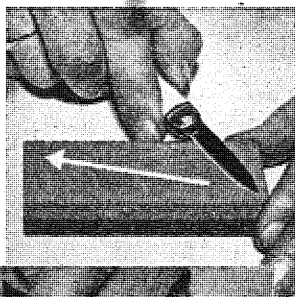
STEP 4: Deburr new cutting edge by placing concave face of gouge flat on convex face of Gouge Slip. Rub gently back and forth. This breaks off the fine "wire edge" that develops with each new stoning. The gouge should now be ready for use.

SCRAPER

It is best to hold the blade in a vice, then use a Bench Stone on the bevel, first the coarse and then the fine side. Take off the "wire edge" against a piece of hardwood, and give it the final stoning to a fine edge. Then turn the edge of the bevel downward by burnishing with a piece of hard, smooth steel, or the burnishing tool.

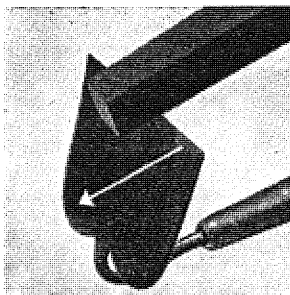
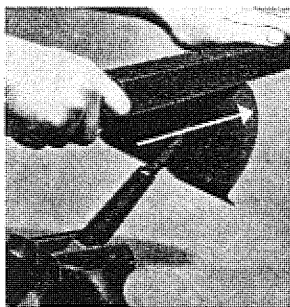
POCKET KNIFE

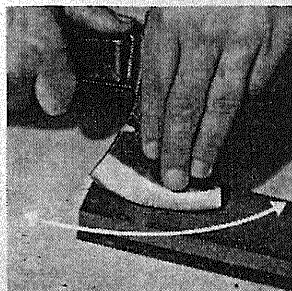
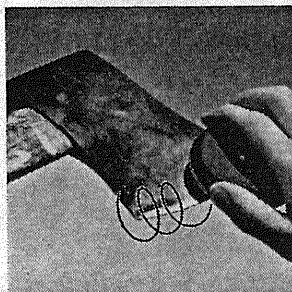
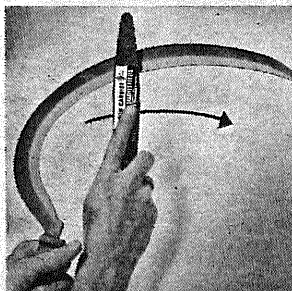
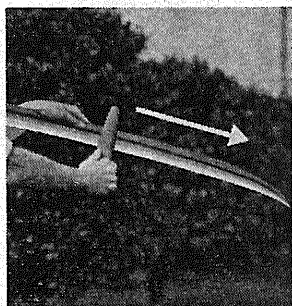
This is one tool on which both sides must be stoned equally. Hold the stone by one end on the corner of a flat surface. Place the blade flat on the stone in a diagonal position. Now tip the back of the blade up about 25° . Draw the blade against the surface diagonally the length of the stone, beginning at the heel and ending at the tip. Turn blade over and repeat the operation from opposite end. A few drops of light oil will help the sharpening process.



SPADE, SHOVEL AND HOE, ETC.

An edge on these tools makes work with them far easier. A coarse edge will serve. Use a "57" File of Silicon Carbide abrasive in a diagonal motion against the edge bevel until enough metal is removed from the blunt edge so that the tool will enter the earth with a minimum of effort. If possible, place the spade, etc., in a vice so that it will leave both hands free to obtain maximum effect with the File.





SCYTHE

Sharpen scythes on both sides. Stroke the edge with a Silicon Carbide Scythe Stone, always from heel to tip. As the shape of the blade alters near the point or tip, here the scythe stone should be held at a slight angle from the scythe. Although sharpening may be commenced with the stone held on the back of the scythe, lift it away slightly during the stroke. This gives a better sharpening angle.

SICKLE

A Silicon Carbide Scythe Stone is well designed for sharpening sickles. Stone similar to a scythe except that metal is removed on only one side. Remove burr with stone flat against back.

AXE

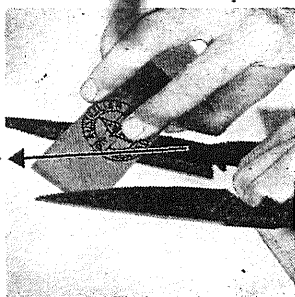
A good axe is a fine tool. It requires a keen edge, for ease of work and for safety — a sharp axe is less likely to glance off the wood. Use a Silicon Carbide Combination Axe Stone. The edge of the axe should have a rather obtuse bevel, continuing the oval form of the blade. Lay the axe flat on the edge of a bench and move the sharpening stone in a rotary motion from end to end of blade. Turn axe over frequently while sharpening. Kerosene or water can be used if oil is not available.

HATCHET

If the hatchet has a curved edge, while moving the blade from end of the stone, rock it so that all parts of the edge will get equal stoning. In the case of a straight-edged hatchet this rocking motion is unnecessary. A hatchet can be given chisel fineness with a fairly acute bevel.

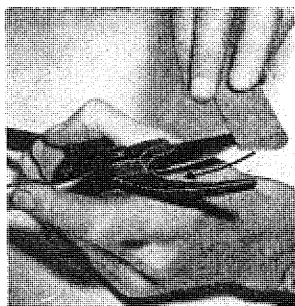
GARDEN SHEARS

Spread the blades so that the edge can be reached from point to heel. Using a medium Silicon Carbide Slip Stone, stroke the edge bevel diagonally from heel to point, as in photo. Turn over and repeat on the other blade.



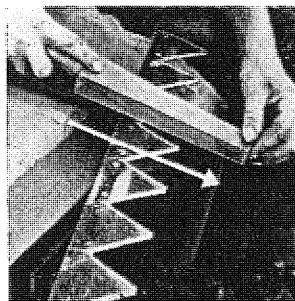
SECATEURS

Use a Silicon Carbide Slip Stone, the shape of which facilitates the sharpening of these tools. Stroke from point to heel, making sure original bevel is retained. Very lightly remove any wire edge by rubbing with stone flat against back. Do not remove metal from back as this will result in a space between blade and hook, and a clean cut will be impossible to obtain.



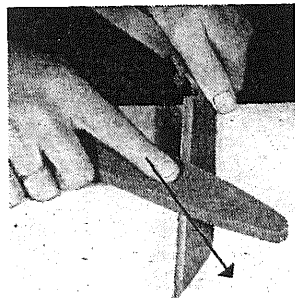
MOWER BLADE

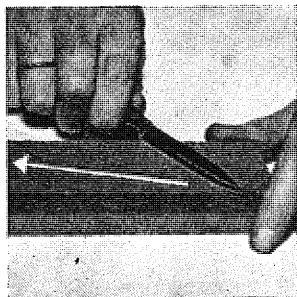
Without removing from the machine, the edges of a mower section knife, nicked by stone or wire, can be restored to keen cutting condition speedily with a few strokes of the Silicon Carbide "57" File. The shape of this stone enables it to reach every part of the bevel from point to gullet.



HEDGE CLIPPERS

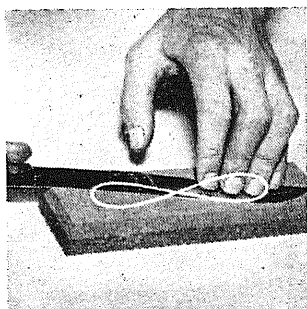
Open blades and hold one firmly on edge of bench. Using a No. 198 Scythe Stone sharpen edge diagonally from heel to point. Repeat on other blade. In most cases, a few strokes on the edge bevel only of each blade is necessary to restore a keen edge.





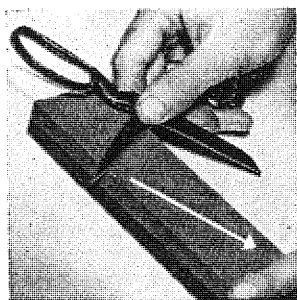
KITCHEN KNIFE

Small knives are best sharpened on a Silicon Carbide Combination Bench Stone. As a relatively coarse edge is best, use coarse side of stone. Sharpen in the same manner as a pocket knife, drawing cutting edge of knife against the surface diagonally the length of the stone.



CARVING KNIFE

Place blade flat on stone, then raise the back of the blade up about 20-25°. Because of flexibility of blade, use fingers to steady it. Sharpen first one side, using the "Figure 8" movement, then the other.



SCISSORS

An Aluminium Oxide Combination Bench Stone is excellent for scissors. Place stone near edge of flat surface so that one blade hangs clear. Grasp near middle, and place cutting edge on stone at slight diagonal. Tip blade toward the bevel. Draw cutting edge against stone diagonally the length of the stone. Use Coarse side first, then Fine side.

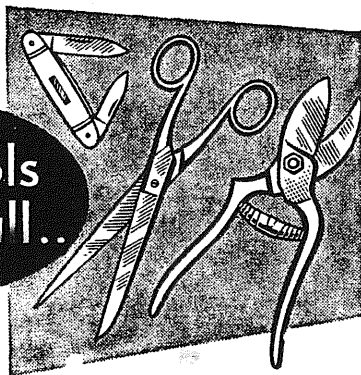
A word in conclusion—

YOUR success with hand-sharpening problems is the purpose of this booklet. We sincerely hope it will prove of enduring value to you.

Your questions or problems concerning sharpening or sharpening stones are always welcome and will receive our prompt attention.

AUSTRALIAN ABRASIVES PTY. LTD.
PARRAMATTA ROAD, AUBURN, N.S.W.

If small tools
become dull...



...touch them up with an

A.A. 149 POCKET STONE



Every gardener, handyman, hobbyist and housewife has a need for an A.A. No. 149 Silicon Carbide Pocket Stone. It's the handy fine-grit stone just right for touching-up the edges of pocket knives, kitchen knives, scissors, secateurs and other small tools. Fishermen, too, find it ideal for keeping hooks needle-sharp. 3" long, $\frac{1}{2}$ " wide, $\frac{1}{8}$ " thick, the A.A. No. 149 Pocket Stone fits easily into pocket or drawer — ready for instant use. Also available — as 149L — in silver-stamped leather case at your hardware store.



"A Cutting Tool is Only as Good as Its Edge"

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